X-axis given in terms of the voltage (variactor voltage (v)) potential applied across the variactor diode of the transmitter 86. The characteristics of the non-linear plot 96 can be modeled using the below expression 1:

p3 cont

$$f = 162.37 + 0.3293 \bullet \ln(v) + 0.0696 \bullet \ln(v)^2$$

$$-0.041 \bullet \ln(v)^3 - 0.0362 \bullet \ln(v)^4 + 0.0795 \bullet \ln(v)^5 \qquad (1)$$

$$-0.0417 \bullet \ln(v)^6 + 0.0069 \bullet \ln(v)^7$$

where v is the voltage potential across the variactor diode given in volts, and f is the output carrier frequency in Mhz of the transmitter 86.

By utilizing the characteristics defined by expression (1), the correct amount of second harmonic predistortion, previously mentioned with reference to microcontroller 72, can be determined. For example, let v_o represent the dc bias voltage potential across the variactor diode within the transmitter 86, v_1 represent the voltage potential across the variactor diode at the positive peak of an undistorted sinewave source, and v_2 represent the voltage potential across the variactor diode at the negative peak of an undistorted sinewave source. Let f_1, f_2 and f_3 represent the carrier frequency as applied by the above expression (1), for v_o, v_1 and v_2 respectively. The amount of second harmonic distortion (A) to predistort the sinewave is given by the below expression (2):

$$A = \frac{f_o - \left(\frac{f_1 + f_2}{2}\right)}{f_1 - f_2} \qquad (2)$$